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60/389,061 **14 June 2002 (14.06.2002)** **US**
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(54) Title: **FLAVONOL EXPRESSING DOMESTICATED TOMATO AND METHOD OF PRODUCTION**

(57) Abstract: The present invention includes non-transgenic domesticated tomato plants that express flavonols in the flesh and peel of the tomato fruit, and includes the seeds and fruits of such plants. The method of the invention includes assaying tomato plants for expression of one or more of the flavonol biosynthesis genes in the flesh and/or expression of CHI in the peel. The method of the invention includes selecting wild tomato species that express CHI in the fruit peel, and/or one or more genes of the flavonol biosynthesis pathway in the flesh, and introgressing the genetic factors responsible for this expression from the wild tomato species into a domesticated tomato plant using traditional breeding techniques.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/18122

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A01H 1/00, 1/04, 5/00, 5/08, 5/10

US CL : 800/260, 266, 269, 317.4

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 800/260, 266, 269, 317.4

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	STEWART, A.J. et al. Occurrence of Flavonols in Tomatoes and Tomato-Based Products. J. Agric. Food Chem. 2000, Vol. 48, pages 2663-2669; see page 2666-2668, Tables 1-5.	1-36
Y	MUIR, S.R. et al. Overexpression of petunia chalcone isomerase in tomato results in fruit containing increased levels of flavonols. Nature Biotechnology. May 2001, Vol. 19, pages 470-474; see pages 471, column 1 and page 472, conclusions.	1-36
X, P	BOVY A. et al. High-Flavonol Tomatoes Resulting from the Heterologous Expression of the Maize Transcription Factor Genes LC and C1. The Plant Cell. October 2002, Vol. 14, pages 2509-2526; see page 2510, column 2, lines 21-30 and page 2512, column 2, lines 24-29.	1-36
X, P	VERHOEYEN, M.E. et al. Increasing antioxidant levels in tomatoes through modification of the flavonoid biosynthetic pathway. J. of Exp. Botany. October 2002, Vol. 53, No. 377, pages 2099-2106; see page 2100, column 1 lines 3-9; page 2101, column 1 line 8 to column 2 line 8; page 2103 column 2 lines 32-49.	1-36

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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INTERNATIONAL SEARCH REPORT

PCT/US03/18122

Continuation of B. FIELDS SEARCHED Item 3:
STN: agricola, biosis, embase, caplus
WEST